

**METHOD AND APPARATUS FOR CONTROLLING FRICTION BETWEEN A  
FLUID AND A BODY**

- 5           A method and apparatus is disclosed wherein nanostructures or microstructures are disposed on a surface of a body (such as a submersible vehicle) that is adapted to move through a fluid, such as water. The nanostructures or microstructures are disposed on the surface in a way such that the contact between the surface and the fluid is reduced and,
- 10           correspondingly, the friction between the surface and the fluid is reduced. In an illustrative embodiment, the surface is a surface on a submarine or other submersible vehicle (such as a torpedo). Illustratively, electrowetting principles are used to cause the fluid to at least partially penetrate the nanostructures or microstructures on the surface of the body in order to
- 15           selectively create greater friction in a desired location of the surface. Such penetration may be used, for example, to create drag that alters the direction or speed of travel of the body.